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THE INSIDE THE WORLD'S LAST EDEN

**A PERSONAL JOURNEY
TO A PLACE NO HUMAN
HAS EVER SEEN**

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THE LAST EDEN

A trip into a remote African rain forest is a journey back in time to a world where the animals have never encountered humans. Will this treasure be preserved?

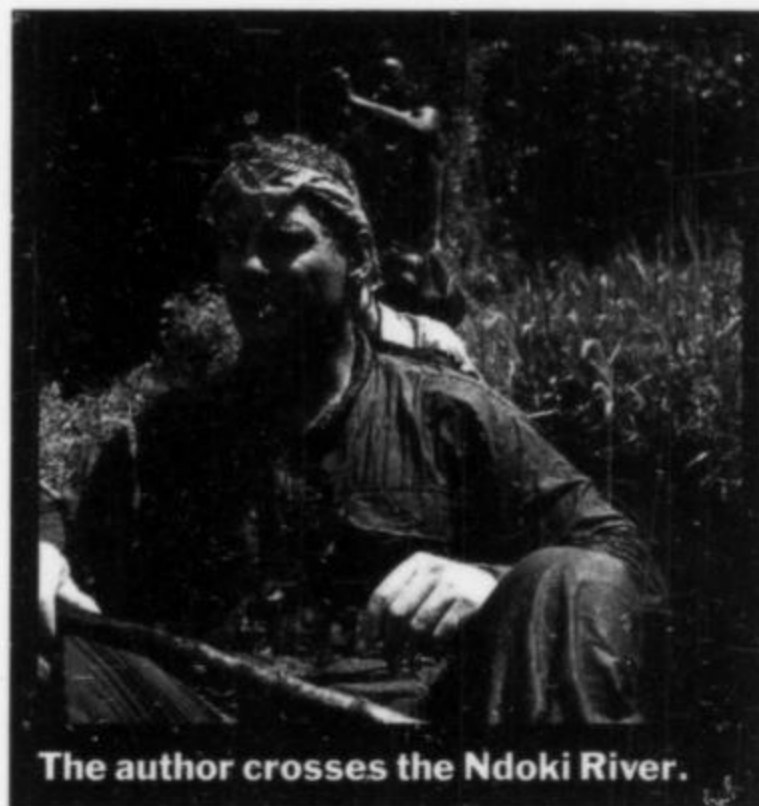
By **EUGENE LINDEN** THE NDOKI

NDOKANDA, A BANGOMBE PYGMY, hunkers down beside me. Holding the bridge of his nose, he lets out a loud bray—his dead-on imitation of the cry of small rain-forest animals called duikers. These deerlike creatures make the noise in the throes of giving birth, and Pygmies imitate it because other duikers come running when they hear the call. This time, however, the braying attracts a large band of chimpanzees, drawn by the prospect of dining on vulnerable duikers. For a moment I feel the shiver of being hunted.

But when the chimps spot the Pygmy and his three white companions, the animals stop dead in their tracks. Their bloodlust gives way to astonishment, as if they are seeing something they have never seen before. They begin stamping their feet, shaking their arms, calling to one another and throwing branches at us. As many as 25 animals scream from all sides. Each time we make a move, a new round of calls erupts among the chimps, but they never show signs of fleeing.

Instead, for more than two hours, the mesmerized chimps hover around us, drawing to within a few arm lengths. I am flabbergasted. Wild chimps do not react this way to humans in any other part of the African rain forest. But this is no ordinary meeting of fellow primates. For the chimps surrounding us, seeing humans amounts to an ape version of *Close Encounters of the Third Kind*.

In this drama, we are the aliens. We have ventured into the last vast unexplored rain forest on earth—the unsullied Ndoki region of northern Congo—a place



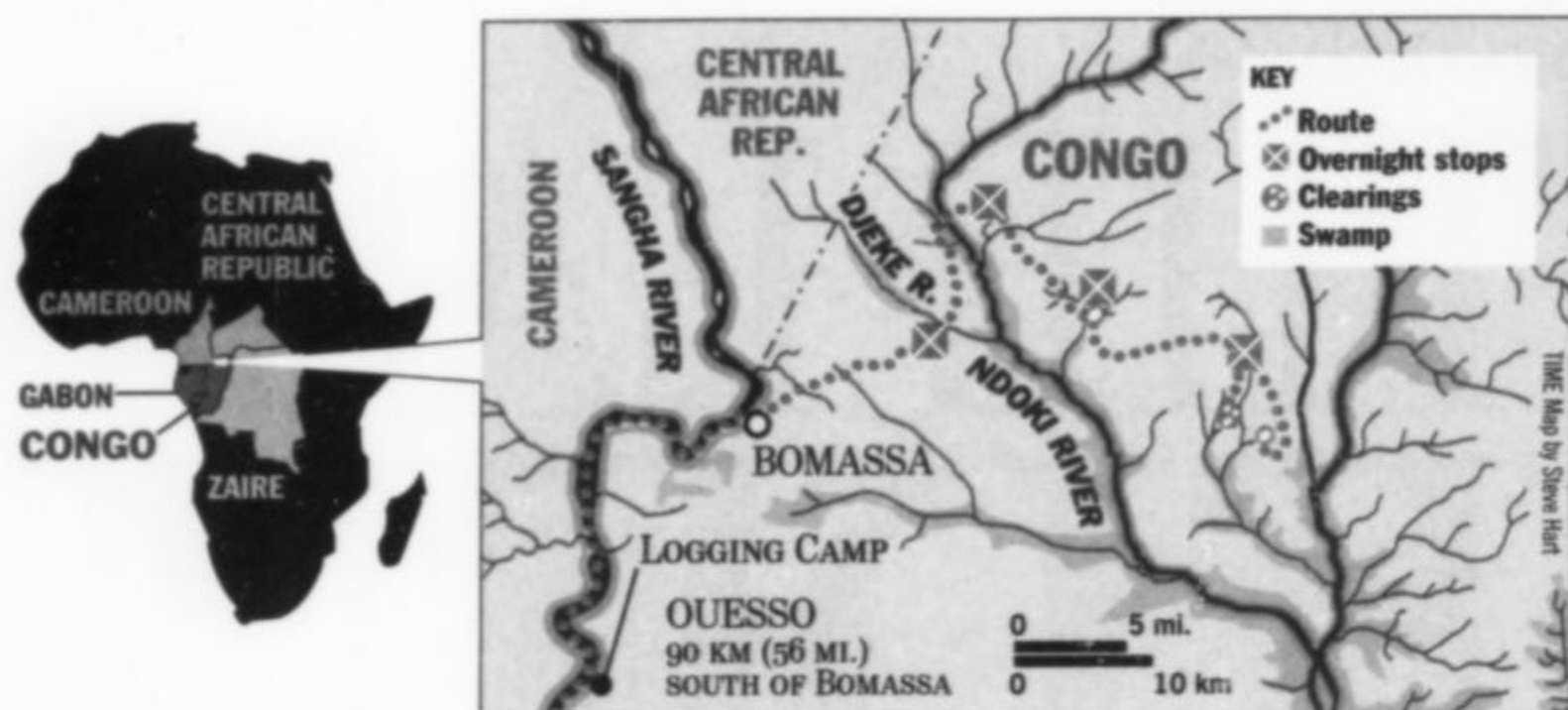
The author crosses the Ndoki River.

where the animals do not know what to make of us because they have never seen humans before.

The word Ndoki (pronounced en-doe-key) means "sorcerer" in Lingala, and this is indeed an enchanted, mysterious place. Guarded by swamps to the south and east, hills to the north and the forbidding Ndoki River to the west, the region is almost inaccessible. Pygmies have crisscrossed central Africa for thousands of years, but there is no evidence that they have entered beyond the fringes of this 3 million-hectare (7.5 million-acre) expanse of virgin forest, which is about the size of Belgium.

Our 15-day expedition, led by botanist Michael Fay of Wildlife Conservation International, has taken us to parts of the forest we believe no human has ever seen. We are catching a glimpse of the rarest treasure on this crowded planet: an ecosystem as pristine today as it was 12,000 years ago, before humans began to transform the earth. Our journey into unknown

One of the swampy open places cleared by elephants so they can socialize with friends and relatives.



territory is a grand adventure, one that is as exciting as it is daunting. At one point, Fay must persuade apprehensive Pygmy trackers to continue through the Ndoki, for legend holds that the forest is home to Mokele Mbembe, a dinosaur-like creature that can kill elephants.

Mokele Mbembe could hardly create more of a stir than we do in this previously undisturbed land. Gorillas stare and scream at us, and sometimes charge, but almost never run away. Colobus and cercopithecus monkeys crane their necks to eye us from high tree branches. Gloriously fat wild pigs, elsewhere the favorite game of hunters, look up from their rooting and peer at us calmly through the low brush for several minutes before moving off toward new forage.

But most intriguing is the curiosity shown by the highly intelligent chimps. "What do they think of us?" I wonder. They must recognize our apelike features, but our clothes and equipment are novelties in this world. While our size and lack of fear make them cautious, they clearly have no awareness of how deadly our species can be. Otherwise they would flee as wild chimps do in other parts of Africa where apes are part of the human diet.

If the apes are bewildered, we are in awe of the wild innocence of their world. Was this how the wandering Asians felt more than 10,000 years ago when they crossed to Alaska and marched south-

ward through the Americas, going where no man had ever gone? On today's fully occupied planet, there are few places left where indigenous peoples do not hunt and trap or where loggers and mining companies have not sent in teams of surveyors. The great forests east of the Ndoki River may be the earth's last Eden.

I first heard about the Ndoki three years ago, when Fay told me about this wondrous forest where gorillas, chimps and other animals do not run away at the sight of humans. At the time, I was researching an article on great apes, and I thought Fay was exaggerating. I had spent fruitless days trying to get glimpses of chimps and gorillas in forests just to the north of the Ndoki, and it was hard for me to imagine that Africa might still contain forests so remote that the animals had never learned to fear mankind. Western lowland gorillas, hunted for centuries, are among the shyest, least-known animals on earth, and scientists in Gabon and the Central African Republic have invested years trying to gain trust so they could study the animals at close quarters.

Not long after my talk with Fay, I encountered Japanese primatologist Masazumi Mitani, who along with Suehisa Kuroda established the first research camps at the edge of the Ndoki region in 1987. Since then, the Japanese researchers, in cooperation with Congolese scientist Antoine Ruffin Oko, have conducted a groundbreaking survey of animal populations in the Ndoki and have closely studied the primates, including gorillas and chimps. Mitani told me the animals were indeed unafraid of humans, but warned that conditions in the region were "very, very difficult." Knowing the extreme privation Japanese primatologists regularly endure, I took these cautionary words very seriously.

Yet my desire to visit this extraordinary place was tempered not so much by the prospect of hardship as by the feeling that perhaps the Ndoki should be left alone. It has been protected for millennia by its inaccessibility.



Should there not be somewhere on earth where nature can be safe from the heavy hand of humanity? Journalists, explorers and scientists can inadvertently set in motion the destruction of the places they are trying to protect.

Later conversations with Fay and others disabused me of the notion that the Ndoki would be safe if simply left alone. Only lack of funds has stymied government plans to build a road through northern Congo that would open the region to development. And in 1990 only the arguments of Fay and Japanese researchers, backed by the U.S. government and the World Bank, persuaded Congolese authorities that there were alternatives to giving a logging concession for the Ndoki region to an Algerian-Congolese consortium.

Even now, the Ndoki is almost entirely surrounded by logging concessions. Moreover, had an international convention not banned the sale of ivory in 1989, poachers almost assuredly would have braved the swamps and rivers and invaded the region, which is among the last places in central Africa with substantial numbers of elephants. Finally, a 30-year dry spell and overgrazing to the north have pushed migrant human populations southward

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Standing from left, Fay, Linden and Seraphin stop for a brief visit at the Japanese research camp.

through Central African Republic and into northern Congo, ever closer to the edges of the Ndoki.

In response to these pressures, Fay began working in 1989 with the World Bank, the U.S. government, the Japanese scientists and conservation organizations to encourage the Congolese government to establish an Ndoki park. The goal would be to protect the core of the region while allowing some tourism on the more accessible fringes. The involvement of the World Bank, however, aroused the ire of groups such as the Environmental Defense Fund and Greenpeace, which argued that the project might bring on the human intrusions it was designed to prevent.

So I put aside my reservations and arranged to join Fay on an expedition into the Ndoki in late May. He planned to renew his search for two unnamed clearings in the interior of the forest that showed up on aerial maps but that he had failed to locate in a foray two years earlier. He also hoped to test a battery-operated geographical positioning device that he would need during a longer surveying expedition later this summer.

Our trip begins in Ouessou, a frontier town of 13,000 on the Sangha River in

northern Congo. There three Americans — Fay, Karen Lotz, a photographer, and I—set off in a 14-m (46-ft.) motorized dugout canoe for the nine-hour trip up the Sangha River, past a logging camp to Bomassa, a Pygmy village adjacent to the headquarters being set up for the proposed park.

Outside interest in northern Congo forests dates to the turn of the century; colonial records include an outraged letter by an expatriate who demanded compensation from the French government for the death of his son, who was eaten by cannibals. But intensive logging began only in the mid-1980s. "If the loggers weren't here, we could leave as well," says Fay. He finds it frustrating that logging continues despite studies commissioned by the World Bank and the Congolese showing that almost all of these operations lose money and cheat the government by welshing on debts to state-owned companies. As if that were not enough, Libyan employees of Socalib, a Libyan-Congolese logging company, were implicated in the 1989 bombing of a passenger jet over Niger. Scores of Congolese people died. "Forestry's been great for this country," remarks Fay sarcastically. "They cut the forests, stiff the Congolese

on taxes and debts, and then kill the citizens."

Fay is a small but durable 35-year-old New Jersey native nicknamed "Concrete" by the Pygmies for his willingness to endure the hardships of the jungle. Accustomed to spending unscheduled nights outdoors, Fay has become rather haphazard and fatalistic about planning. As a result, when darkness falls we are still several kilometers short of Bomassa. The boat runs aground time after time as we try to pick our way with a flashlight through constantly shifting sandbars. Fay is unperturbed, which is more than I can say, and he will be equally sanguine about many other mishaps in the coming days.

When we finally get to Bomassa, Fay sends word to the village that he wants to hire trackers and bearers. A ragged, somewhat inebriated group shows up the next morning. Fay chooses Ndokanda and Joachine, trackers he has worked with before, but rejects one Pygmy whose feet are swollen with elephantiasis. He fills out the team of bearers by lifting our packs and duffels and estimating how many men it will take to carry the load: "That's half a Pygmy, that's three-quarters and this one [he grunts as he hefts a 132-lb. pack] a whole



CLOCKWISE FROM UPPER LEFT: GEORGE STEINMETZ, J. MICHAEL FAY, STEPHEN DALTON—ANIMALS ANIMALS, PETER WARD—BRUCE COLEMAN, J. MICHAEL FAY

NDOKI WILDLIFE

These forests offer the opportunity to see nature as though mankind did not exist. Without hunting or other human pressures, animals flourish in concentrations found perhaps nowhere else.

Clockwise from upper left: the armor-plated pangolin; the shy but highly social forest elephant; the gregarious African gray parrot; aggressive, stinging driver ants; the magnificently antlered bongo.

Pygmy." Standing nearly 5 ft., the BaNgombe and BaNbengele peoples are taller than most other Pygmies but still seem impossibly small to haul the loads they agree to carry. Seraphin, an auspiciously named employee of Fay's who has come downriver from his home in the Central African Republic, offers to come along as cook.

The 25-km (15-mile) hike from Bomassa to the crossing point on the Ndoki River takes one or two days, depending on how much the bearers have had to drink. We make the mistake of traveling ahead of the Pygmies, and our hung-over crew drags its feet, forcing us to camp just before the Djeke River, 16 km outside Bomassa. Fay says he cannot push the porters too hard or they will simply abandon us in the middle of the forest as they did him on a prior trip into the Ndoki.

After a meal of soup, salami and cookies, I settle in to sleep, wondering whether the dire reports I had heard from the Japanese researchers had overstated the dan-

gers of the area. A few minutes later, I awake feeling an insect on my finger. Flicking it off, I feel another take its place, and then suddenly thousands of bugs seem to bite me at once. Seconds later, I hear a strangled cry from Karen as she is attacked as well. Stumbling blindly over roots and a massive column of ants, we tear down a path and dive into the river. Crushing the ants seems to release some chemical distress signal: as we emerge from the river, the aggressive creatures drop on us from everywhere.

Stamping, slapping and at a loss, I rouse Fay, whose tent is out of the line of attack. Surveying the insects that still cover my legs, he says drowsily, "Driver ants can really be a problem; they can kill a tethered goat," and then goes back to sleep. Moving my hammock away from the column of ants, I wince with pain as I drive a spiky vine clear through my thumb and watch blood spurt out. Then it starts to rain. By 2:30 a.m. the

ants have moved on, and I miserably return to my tent for what's left of the night.

The next day we hit the swamps that have long deterred those curious about the Ndoki. We pick our way through the quicksand-like muck by feeling with our toes and walking sticks for a series of thin logs Japanese researchers have previously laid down. I slip once and fall up to my chest in mud before grabbing a root. Sobered by the slip, I ask Fay how deep the mud is. "Who knows?" he says, shrugging.

The Ndoki River is the real barrier. Unnavigable and meandering, it is 3 m (10 ft.) deep in places and spreads out into swamps several kilometers wide. Even at its shallowest points, it can take eight hours to cross on foot and is impassable much of the year. We use a pirogue that Kuroda's team has built to resupply his tiny station. Parched by the precarious walk to this point, we cool ourselves with the absolutely pure waters of the Ndoki as we pole through the river grass.

Fay thinks he knows why the Pygmies have historically kept to the west side of the river. With ample game in the more accessible forests, they have had no need to risk a crossing. At this point, though, I am not thinking of hardship but rather of the beauty of the grassy river, the fragrant smells floating through the clean air, and the world that lies beyond the east bank of the Ndoki.

After landing, we begin our journey back in time. The forests in these wet areas are open and cool, even though the equatorial sun beats down on the upper stories of the canopy. At one point we discover leopard droppings containing black hair and some bone bits. The Pygmies claim it is gorilla hair, though only DNA analysis could tell for sure. Fay thinks it's possible, since he has documented leopard attacks on gorillas. Samory, one of the trackers, claims leopards kill the immensely strong apes with surprise attacks in which the cat quickly snaps its jaws around the gorilla's throat. The Ndoki may be innocent of humans, but it is not a peaceable kingdom.

There is, in fact, a civilization in these forests, even if it is nonhuman. The area is latticed with trails, some as wide as boulevards, that have been cut and maintained by elephants. Says Ndokanda: "This is the elephant's city, and the leopard's and other animals' too." The grid of paths leads to the elephants' favorite spots: mineral licks and clearings, where they socialize with relatives and friends; baths, where they cover themselves with mud; knobby trees, where they rub the mud off, stripping their skin of ticks in the process; and trees such as the *Balanites wilsoniana* and *Austranella congoensis*, beloved by the big animals for their fruits.

We have left behind the overhunted west bank of the Ndoki, where elephant trails are abandoned and overgrown. On the east side we see fresh signs of elephants everywhere. We do not, however, see the great beasts. Because of the vast territory they roam, and perhaps because of their ability to communicate with one another, they are the only creatures in this ecosystem that know about humans. They stay away from us.

The elephant paths and clearings open up the forest for other big animals such as buffalo, and the trails certainly make walking easy for us. As we head down one path, Joachine suddenly pauses. The brush erupts as a male gorilla charges, then abruptly stops and drops down in the vegetation to stare. Fay observes that gorillas favor the herbaceous plants growing in marshy lowlands and in places where elephants have created clearings. Farther from the water, the canopied forest suits chimpanzees. With both populations at very high levels, the Ndoki is one of the few places on earth where chimps and gorillas live close together. Fay and the Japanese

researchers have even seen gorillas and chimps feeding in the same fig tree.

Now that we are far away from the nearest village and the temptations of palm wine, the Pygmies begin to come into their own. Even with 14 years' experience, Fay can still lose a trail, but Ndokanda, a former elephant hunter, or any of the other Pygmies can read the very faintest imprint with a glance. In the forest they are utterly self-reliant, creating cord from vines, cups from leaves and bed mats from bark. Still, they are apprehensive about this forest, and when Fay tells them where we are going, Samory says, "Mokele Mbembe lives there." Fay is convinced that the Pygmies are describing a black rhinoceros, an animal that does occasionally fight elephants.

THAT NIGHT TERMITES REDUCE Fay's one T shirt to tatters. This gives him the excuse to try his "new system," which means stripping down to a bathing suit and sandals. "Come back in two years, and you will find me completely naked, living in the middle of the Ndoki with six Pygmy wives," he jokes. He thinks that the Pygmies have it right: the less you wear, the faster your skin dries after rainfall and the less likely you are to get parasitic fungi and footworms. Fay has already accumulated four nasty footworms, which burrow under the skin until they discover that you are not a pig or elephant—their proper hosts. The worms then die, but bacteria in the little corpses infect your feet.

The second day after crossing the Ndoki, Fay announces that we are entering the "unknown," and we set off in search of the two clearings, called *bais* by the Pygmies, that he failed to find in 1990. Fay is certain that the *bais* are elephant strongholds. According to maps drawn from aerial reconnaissance, we have to cross at least 15 km of dry land before reaching the next watershed. Unless we find a stream by dusk, we face a waterless night after a full day's hike. Ndokanda sets an uncharacteristically slow pace, so Fay decides to shame him by taking the lead. As we set off ahead, he remarks, "The one thing Pygmies can't stand is for a white guy to lead in the forest."

Entering dryer land, we come across disturbing signs that humans are affecting this forest from afar. Everywhere we see fallen *Gilbertiodendron dewevrei* trees with no sign of regrowth. Fay says this tree species dominates during wet periods and may be dying out because of the long dry spell that has reduced rainfall more than 10% over the past 30 years. Many scientists believe the shortage of rainfall stems from the widespread deforestation

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by humans in other parts of Africa, which may have changed the continent's weather patterns. Already the Ndoki is one of the driest tropical rain forests on earth, and if rainfall keeps decreasing, the woodland may be doomed no matter what legal protection it receives.

By afternoon I'm all sweated out and parched, but still we see no sign of water—or of the Pygmies straggling behind us. At one point Fay sees a thick vine and says, "Aha!" He hacks off a section at just the right spot, and pure water spurts into his mouth. I grab his machete and hack away but manage to taste only a few drops.

As the sun sinks and it appears that we will spend a dry and desperate night, we finally hit sandy soil—a good sign. Soon we find elephant footprints filled with water. It looks pure, and I drink greedily. Fay's hand is so tired from hours of hacking with the machete that he cannot open the water bottle I have just filled.

As soon as we settle down to wait for the rest of the group, Ndokanda comes motoring by us. Not bothering to stop, he yells at Fay in Sango, "You fool, I know this place. Right ahead there is plenty of water." Ndokanda is right, of course, and we are left openmouthed, wondering what enabled him to recall this tiny part of a vast forest from a brief visit years earlier.

That night, with Fay interpreting, I ask the Pygmies how they would feel if a road were built through the Ndoki and led to the destruction of the forest and animals. At first they scoff, saying there is no way anyone can kill off the forest—it is just too big. Then they get excited. "So that's what you are doing here," says Samory, "building a road. Great! Pay us well, and we'll build it for you." Joachine chimes in, "But you've got to build it in a straight line, not that zigzag path you took today." They then launch into a debate about how much they should be paid and whether they should be allowed to bring their women.

Listening, Fay shakes his head sadly. The forests have always yielded food and wood during the millenniums Pygmies have hunted in central Africa. They can-

not conceive of the devastation that roads and logging have wrought upon tropical woodlands beyond their charmed world.

If we are dumbfounded by Ndokanda's photographic memory for terrain, it is soon his turn to be impressed. Using a compass and a battery-operated geopositioning system, we look for the two clearings. The system works by using signals sent from satellites and can pinpoint a position within 100 m. By taking a reading in the middle of a swamp near the camp (trees block the satellite signals), we are able to determine the way to the clearings.

It takes us two days to find and explore them. The excitement of discovery, however, gives way to disappointment that elephants no longer frequent these clearings. Ndokanda seizes on that fact as a face-saving way of explaining why he had not found the spots on the earlier expedition.

While we are exploring, Seraphin goes off with two Pygmies and

discovers the remains of an elephant. Fay worries that this may be the work of poachers, but Seraphin points out that the elephant has its tusks. The Pygmies can find no sign that any humans have been in the area. The elephant could have died of natural causes, or it could have been wounded outside the Ndoki and then run inside for refuge.

Every foray into the forest brings us face-to-face with wildlife, most notably gorillas. In one day we tally four separate encounters, and by the end of the trip we have found 15 gorilla groups. A couple of silverbacks, or mature males, go through the motions of halfhearted charges, but most do not come forward even in response to distress calls and hand clapping by apprehensive females when we get between them and the males. We take to call-

ing these circumspect males the "pacifist gorillas of Ndoki." The gorillas also seemed blithely unaware that they are supposed to be ungainly in trees. One giant silverback jumped between several trees and ended up 50 m (160 ft.) from the ground at the very top of the canopy.

Exploring this rich, fecund world is the high point of the expedition. In camp we eat pasta flavored with dried soups and sausages, but Fay uncovers more exotic treats on the forest floor. He likes to pick up half-eaten fruits left by the animals and to sample the untouched parts. I try the juicy kernels of a *Myrianthus arboreus* fruit and decide that gorillas know a good taste when they find one.

Fay's attitude toward the question of what foods people might take from the Ndoki has changed over the years. During his first ventures into the forest, he allowed the Pygmies to catch a duiker every two days, arguing that such brief hunts would in no way affect the forest. Since then, however, he has realized that conservationists should not introduce hunting where animals have never learned to fear humans. Moreover, only if there is a total ban on hunting will the Pygmies resist the temptation to exploit this immensely productive ecosystem.

It is during our hike back toward the Ndoki River that we come upon the band of chimps—an encounter Fay calls "the signal wildlife experience" of his 14 years in Africa. The ruckus the apes raise begins with threats and distress calls, but some of them seem to let out the hoots that chimps use to greet one another. I would like to think these chimps have the capacity to welcome the apelike aliens into their forest.

We hike out of the Ndoki in two days, covering more than 30 km in the last 24 hours. It would be rough going for a distance runner, but I am in no shape for the trip at all. An insect has apparently injected me with one of the countless toxins found in the jungle, and I come down with pleurisy-like symptoms that make every breath painful. It is probably dengue fever, also called breakbone fever. Whatever it is, the final day's march is sheer hell. As at the beginning of the trip, darkness falls when we are still several kilometers from Bomassa, and we walk the last stretch by failing flashlights. At 9 p.m. I stumble, exhausted, aching and 14 lbs. lighter, into the base camp.

The ardors of the trip remind me why this area has remained unchanged since the last Ice Age. Amid our planet's vain struggle to balance conservation with human aspirations, the Ndoki has no villages whose needs must be met or colonists determined to build a new outpost of civilization. Fortunately, this last Eden has formidable barriers protecting its treasures. In all the world, it is perhaps the perfect place to make a stand for wild nature. ■

Halt! Who Goes There?

ALL CONSERVATIONISTS want to preserve the Ndoki, but they're not all convinced that the current plan is the right way. Will the proposed park encompassing 450,000 hectares (1.1 million acres) in the forest core be a safe refuge? Or will it bring hordes of loggers, developers and tourists into the surrounding territory?

Most controversial is the involvement of the World Bank, which administers the Global Environment Facility, the Ndoki park's main sponsor. The bank has been notorious for financing ecologically damaging dams, highways and other grandiose projects all over the globe. Even park proponent Michael Fay admits that asking the bank to protect a pristine area is "a little like giving a bank robber a million dollars to install your security system."

But Fay says criticism has spurred the World Bank to mend its ways. And on close inspection, many of the concerns about the bank's role turn out to be unfounded. For instance, critics such as Greenpeace have argued that the Ndoki park proposal is linked with a loan to Congo that would promote logging. In fact, there is no linkage, and the loan has been tabled because Congo is behind on paying debts. Opponents have also contended that plans for building a road and improving the navigability of the Ndoki River will open the area to those who would exploit it. The feared road, however, is only a Wildlife Conservation International project to improve marginally a dirt path for moving supplies, and the proposal to clear vegetation from the river is simply a WCI plan to remove some fallen trees so that a pirogue can travel between research camps.

Fay concedes that the plan involves compromises and depends on the future good faith of the Congolese government, which is currently racked by turmoil and corruption. Once Congo elects a new government, the strong arm of the World Bank could prove helpful in ensuring that the country honor agreements prohibiting any economic activity in the core area.

The most delicate issue is how to prevent the region from being overrun by immigrants. Scientific research and limited tourism will provide job opportunities for some of the 250 Pygmies who live in nearby Bomassa, but probably not enough to attract a large wave of newcomers. Of the three merchants who moved into Bomassa anticipating a boom, two have already relocated in disappointment. That's just fine with the park advocates, whose purpose is not to create new fortunes but to save the Ndoki's irreplaceable natural treasures. —EL



Future park headquarters under construction